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Does being assigned to a low school track negatively affect psychological adjustment? A longitudinal study in the first year of secondary school

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Previous research suggests that the 1st year in secondary school for some students goes hand in hand with an increase in adjustment difficulties. One factor that might influence this process on an individual, compositional, and institutional level is the academic track a student attends. It was hypothesized that being assigned to a low-qualifying track predicts a stronger increase in adjustment problems than being assigned to higher tracks. A sample of 734 seventh-grade students from Switzerland attending 1 of 3 regular academic tracks or special educational classes participated. Pupils reported anonymously on their antisocial behavior, anger control problems, self-worth, and emotional distress. Multilevel analyses were performed, predicting end of 7th-grade adjustment by track controlling for initial adjustment and background variables. Students enrolled in the low- qualifying regular track increased significantly more than students from other tracks regarding their problems with global adjustment, antisocial behavior, and emotional distress.

Keywords: adjustment problems; behavioral problems; academic track; ability grouping

Introduction

The transition from primary to secondary school, for some students, corresponds not only with a dip in scholastic achievement (Alspaugh & Harting, 1995) but also with psychological adjustment problems (Anderson, Jacobs, Schramm, & Splittgerber, 2000). Such adjustment difficulties represent potentially significant mental health issues that may have serious outcomes. They are often categorized in both externalizing (e.g., aggressive behavior or anger control problems) and internalizing behavioral symptom spectra (e.g., anxiety, depression, and low self-worth; Reynolds, 2001). Following entry into secondary school, there are students who develop more such difficulties, for example, aggressive behavior (Pellegrini & Long, 2002), depressive symptoms (Hirsch & Rapkin, 1987), and self-worth problems (Blyth, Simmons, & Carlton-Ford, 1983).

While these problems co-occur with several developmental changes typically experienced in early adolescence (Howe & Richards, 2011), psychological adjustment can also be influenced by the challenges met in the new secondary school context (Anderson et al., 2000). For example, the transition to secondary school often means a loss of primary school friendships and the need to get along within a new classroom peer environment with resulting changes in social status. Further, students report a decrease in the quality of student–teacher interactions from primary to secondary school (Ferguson & Fraser, 1999),

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which probably is related to secondary schools' larger sizes, increased departmentalization, and larger staffs. While all students have to face these issues, there is evidence of individual variation in the development of psychological adjustment problems following school transition (Anderson et al., 2000). However, the factors accounting for this variation have not been widely explored. In this study, we investigated one such factor, academic tracking. Specifically, we examined whether being assigned to a low-qualifying school track was associated with increased adjustment difficulties during the 1st year of secondary school.

Potential effects of being assigned to a low-qualifying school track on adjustment

Academic, or curriculum, tracking refers to the practice of grouping students into classrooms and course sequences based on their abilities. Internationally, secondary school tracking is a common practice with varying degrees of flexibility. While students in less strictly organized systems might attend courses on different track-specific levels (as practiced, e.g., in the United States), others stay in self-contained classrooms and attend courses all on the same level. In some countries, such as Germany, Switzerland, or Belgium, it can also be found that the different tracks are physically separated into different schoolhouses. However, the tracking process often varies within countries, especially when it comes to federally organized education systems. For example, in Switzerland there are large differences between the 26 cantons (regions) regarding the number of tracks, the flexibility of track-specific course choices, and the ways in which student assignments are organized.

Proponents of academic tracking stress that it permits teachers to tailor instruction to student abilities and argue that tracking is needed to prepare adolescents for different professional futures. However, the procedure also has many critics pointing to less achievement in low-ability groups (Hallinan, 1994). The disadvantages of tracking thus are mostly discussed in regard to students in the low-qualifying tracks, who might have fewer opportunities to learn and may experience a lack of positive stimulation by other students (e.g., Van Houtte, 2004).

Despite considerable research on the effects of tracking on academic achievement (Thrupp, Lauder, & Robinson, 2002), less is known about the relationship between tracking and students' psychological adjustment. There are several considerations as to why being enrolled in a low-qualifying track could be associated with more maladaptive development. First, at the *individual level*, low-track students are already at an increased risk for adjustment difficulties at the beginning of secondary school. This is because assigning students to different academic tracks based on ability is biased by their backgrounds (Neuenschwander & Malti, 2009). Hence, the student population in the low-qualifying tracks is often characterized by low levels of school achievement and an overrepresentation of adolescents from families from low socioeconomic and immigrant backgrounds (Hallinan, 1994). These factors are known to correlate with an increased risk of adjustment issues (Felner et al., 1995; James, 1997; Mandel, 1997). As earlier adjustment problems, in turn, often predict prospective development (Robins & Price, 1991), students in a low track might, per se, be at a higher risk for an increase in adjustment problems than adolescents from other school types.

In addition to pre-existing individual risk factors, enrollment in a lower track might be associated with an exacerbation of students' problems in different ways (Akiba, LeTendre, Baker, & Goesling, 2002). Labeling processes can result in students behaving in ways that meet teachers' expectations for low-track students. For example, some teachers consider

low-ability students to be less trustworthy and to have more behavioral problems than others (Haskins, Walden, & Ramey, 1983; Van Houtte, 2006). Furthermore, students can perceive assignment to a basic track as a personal failing, leading them to reject school-related norms as a frame of reference (Van Houtte, 2006). In addition, students from low-qualifying tracks may feel that, later on, they will have very restricted future job prospects. Such feelings can result in an individual sense of futility, which means that students do not believe it is possible to influence their own success at school anymore (Brookover et al., 1978). A high sense of futility is, in turn, related to school misconduct (Demanet & Van Houtte, 2011; Van Houtte & Stevens, 2008).

On a *compositional level,* the aforementioned student characteristics lead to a specific pupil body in lower school tracks. As students intensively interact with their classmates and develop friendships predominantly among peers of the same stream (Gamoran & Berends, 1987), the student composition in lower tracks might increase the risk of negative peer influence. Indeed, an aggregation of at-risk adolescents can provoke negative influences between them, resulting in disadvantageous individual outcomes (Dishion & Tipsord, 2011). The mechanisms involved here encompass social learning processes such as imitation and the observation or experience of socially reinforced deviant classmate behavior. Further, the above-described individual rejection of school norms and a sense of futility may be further accelerated by peer interactions. According to the differentiation-polarization theory, the differentiation of students on the basis of an academically oriented norm (the hierarchical system of academic streams) leads to a polarization between high-track students with pro-school norms and low-track students with anti-school norms (Hargreaves, 1967; Van Houtte, 2006). In support of this, Van Houtte (2006) showed that students' attitudes towards school and their deviant behaviors differed significantly between tracks in the expected directions. However, Demanet and Van Houtte (2011) suggested that the individual's sense of futility may still better explain the relationship between school composition measures and deviance than the sense of futility aggregated on the school level (indicating the degree of a "culture of futility" among the students).

Besides compositional characteristics, specific *institutional features* of low school tracks might affect students' development. In this regard, Van Houtte (2004, 2006) reviewed and investigated differences in the academic culture between tracks. Based on her investigations, she concluded that school staff culture in basic tracks often was less study oriented. This relates to findings that teachers may consider working with high-track students to be more prestigious than teaching in basic-track classrooms (Finley, 1984). Hence, such processes related to staff culture could promote self-fulfilling prophecies and contribute to lower school connectedness in low-track students. These arguments from an individual, compositional, and institutional perspective lead us to expect that attending a basic track, as opposed to a higher track, predicts more negative student adjustment outcomes.

The need for longitudinal research on tracking effects

To date, the link between tracking and adjustment has mostly been investigated using cross-sectional research (Alexander & McDill, 1976; Junger-Tas, Steketee, & Moll, 2010; Lipps et al., 2010; Van Houtte, Demanet, & Stevens, 2012; Van Houtte & Stevens, 2008). These studies suggested associations between low school track assignments and adjustment difficulties such as more negative self-conceptions and lower self-esteem, less life satisfaction, more psychosomatic problems and depression, and higher

rates of misconduct. Although most of these studies accounted for some intervening variables, their cross-sectional designs did not allow for conclusions on whether being assigned to a low-qualifying track predicted individual development over time (Gamoran & Berends, 1987). Cross-sectional studies should thus be complemented by longitudinal investigations in which adjustment outcomes are predicted, controlling for prior adjustment levels.

Such research is rare and, to our knowledge, does not include examinations on the time following secondary school transitions. For example, two longitudinal studies conducted with primary school children (Abadzi, 1984) and male students above Grade 10 (Wiatrowski, Hansell, Massey, & Wilson, 1982; see also Polk, 1983) reported no significant tracking effects on self-esteem and delinquency. In contrast, Schafer, Olexa, and Polk (1973) found a greater increase in delinquency among non-college-track students than among college students during high school (unfortunately providing only descriptive analyses). Furthermore, Vanfossen, Jones, and Spade (1987) reported that being enrolled in a vocational track, in contrast to general or academic tracks, had a negative impact on global self-esteem, focusing on students between 8th and 10th grade.

Comparisons between these studies are difficult, as various age groups and tracking systems were considered. While Wiatrowski and colleagues (1982) combined three different tracks into one lower track and compared such students to those in college preparatory classes, Vanfossen et al. (1987) analyzed differences between an academic, a general, and a vocational program. The existing studies also suffered from various methodological issues. For example, the net effect of tracking on adjustment sometimes was hard to establish as students had already previously been streamed before measurement began (Wiatrowski et al., 1982). Furthermore, the interpretation of previous findings is complicated since track location changed across courses and often had to be established using students' self-reports (Vanfossen et al., 1987; Wiatrowski et al., 1982). This is problematic because a previous study of a US school system showed that about 19.7% of the students misreported their track location (Fennessey, Alexander, Riordan, & Salganik, 1981; Rosenbaum, 1980). None of the cited studies used multilevel analyses to prevent overestimating effects due to the hierarchical data structure of students nested in classrooms (J. P. Stevens, 2007, pp. 322ff). Therefore, knowledge of longitudinal tracking effects on adjustment should be extended.

The current study

We aimed to add to the presented body of knowledge by focusing on tracking in the 1st year of secondary school and investigating the development of students who had newly been enrolled in tracked self-contained classrooms. A design with two measurement points, one at the beginning (T1) and one at the end (T2) of the seventh grade, was applied. Data were collected in the Swiss canton of Fribourg, where students transition from primary school to a tracked secondary school system after Grade 6. Here, students remain in self-contained classes according to their track until Grade 9. There are three regular academic tracks (advanced: *Progymnasium*; general: *Sekundarschule*; basic: *Realschule*) and one special educational category for students with learning difficulties (*Werkklasse*). These tracks differ in terms of academic demand (which is highest in advanced tracks and lowest in special needs classes). With some exceptions, after the ninth grade, only students from the advanced track can go to the *Gymnasium*, which leads to university. The other students usually enter vocational education. Students from all tracks are taught in the same schoolhouse. Dispersion into the different tracks at the end of the sixth grade is based on four criteria: grades, teacher recommendations, parent recommendations, and performance on a standardized achievement test.

Since the aforementioned studies all related to tracking effects in the regular school system, some additional attention should be given to the special needs classes for students with learning difficulties included in this Swiss study. These classrooms had small class sizes of up to 10 students who were instructed by teachers with specialized training. Here, expectations regarding tracking effects are less easily stated. On the one hand, similar processes as in the regular basic track classrooms can be hypothesized, as students might have similar background characteristics, feel inferior to students from higher tracks, and experience frustration due to unfavorable future job prospects. On the other hand, due to the different regional and international institutional definitions of "special needs" (e.g., in regard to achievement or behavioral problems), the psychological characteristics of these students remain rather unclear (e.g., Müller, Begert, Gmünder, Hofmann, & Müller, 2012; Walser & Killias, 2009). Further, small class sizes, less academic pressure, a low reference norm for achievement within classrooms, and specially trained teachers might buffer some of the negative developmental impacts faced by the basic track students. In light of these conflicting predictions, investigation into the effects of special needs class enrollment on adjustment remains explorative in this study.

Hypotheses

It was expected that at the beginning of the 1st secondary school year students from the basic track would report higher rates of adjustment problems than those who were in the higher streams (Hypothesis 1). Furthermore, there should be a greater school year increase in adjustment issues in basic-track students (Hypothesis 2). We controlled for factors related to both adjustment outcomes and typical student background differences across tracks. As such, we included students' gender, socioeconomic and sociocultural status, immigration background, past class repetitions, and parental involvement (Felner et al., 1995; Furlong, Morrison, & Jimerson, 2004; Hallinan, 1994; Holmes & Matthews, 1984; James, 1997). While these are by no means all the relevant factors related to pupils' adjustment and track differences, an examination of these variables does allow for a more in-depth understanding of the relationships of interest.

Method

Participants

This investigation was part of the longitudinal "Fribourg Study on Peer Influence in Schools" (Müller & Bless, 2011; Müller, Fleischli, & Hofmann, 2013), during which four measurements were conducted in seventh-grade classes. For the present study, only the first and last occasions were considered, in which students filled out the Reynolds Adolescent Screening Inventory (Hampel & Petermann, 2005; Reynolds, 2001). The first point of measurement, T1, occurred 4 to 6 weeks after school started, while the last, T2, was 2 to 9 weeks before school's end. The complete cohort of seventh-grade students (school year 2011/2012) from the German-speaking part of the canton took part in the study (n = 825). Only students who underwent both measurements and who did not change tracks during the school year (n = 24) were included in the analyses. This final sample comprised 734 students from 55 classrooms in eight schoolhouses. The students' gender distribution and socioeconomic status were comparable to those of the entire Swiss

population (International Socio-Economic Index of Occupational Status $M = 48.85$ in this sample and $M = 49.20$ in Switzerland; Vellacott, Hollenweger, Nicolet, & Wolter, 2003), but students who reported not having a Swiss passport were underrepresented (8.7% in this sample and 21.5% in Switzerland; Bundesamt für Statistik, 2012). Further, the canton of Fribourg is a rural region, with 13.6% of the students living in towns (> 10,000 inhabitants), while this is the case for 44% of Swiss individuals (Bundesamt für Statistik, 2013). These sample specificities might lead to an underestimation of adjustment problems among students in Switzerland, but they should not affect the validity of the results concerning potential tracking effects.

Measurement instruments

Dependent variables

The German version of the Reynolds Adolescent Adjustment Screening Inventory (RAASI; Hampel & Petermann, 2005; Reynolds, 2001) was used at both measurement points to assess self-reported adjustment problems in students within the previous 6 months. The RAASI has subscales measuring antisocial behavior, anger control, emotional distress, and self-worth problems (called "positive self" in the English version) that can be summed to achieve the total adjustment score. Participants rate the incidence of adjustment problems on a 3-point scale (0 = *never or almost never*, 1 = *sometimes*, and 2 = *almost always*). The antisocial behavior subscale has eight items ($\alpha = .80$) and contains questions regarding deviant behavior like drug consumption, violation of school or home rules, and breaking the law. The anger control problems subscale (8 items, $\alpha = .76$) asks about arguing with adults, impulsiveness, and excessive anger, while the emotional distress subscale (10 items, $\alpha = .85$) focuses on anxious and depressive symptoms like loneliness, tension, sadness, or having trouble sleeping. In the six items ($\alpha = .82$) concerning self-worth, questions are asked regarding how one feels about oneself. Both the American and the German versions of the RAASI have been extensively validated (Hampel & Petermann, 2005; Reynolds, 2001).

Independent variable

The categorical variable *track* was defined by four groups: advanced track, general track, basic track, and special needs track for pupils with learning difficulties. Descriptive statistics showing track differences in background characteristics and adjustment are presented in Tables 1 and 2 and in the preliminary analyses section.

Control variables

Immigration background. To estimate this variable, we collected participants' self-reported information as to whether they owned a foreign passport (possibly in addition to a Swiss passport).

Class repetition. Self-reported class repetition was operationalized as whether students ever had to repeat a school year.

Socioeconomic status. This variable was measured by student reports of parental employment, and it was classified using the International Socio-Economic Index of Occupational Status classification system (ISEI; Ganzeboom & Treiman, 1996). If both parents were employed, only the higher ISEI score was considered for the analysis.

Books at home. As an indicator of sociocultural status, the self-reported number of books at home was assessed (0–10, 11–50, 51–100, 101–200, 201–400, > 400).

Parental support. Perceived parental involvement in school activities and school-related issues was measured using a scale developed by Fuchs, Lamnek, Lüdtke, and Baur (2009). This consisted of eight items such as "My parents pay attention to me doing my homework" and "My parents almost always go to parent–teacher conferences" ($\alpha = .79$).

Procedure

Anonymous data were collected in the classrooms. Students never had to provide their names, and they were assured no confidential data would be shared. Mobile blinds (about 60 cm high) were set up on the tables between each student so they would not be influenced by their peers when filling out the information. The questionnaires were

Table 1. Distribution of students' background characteristics according to track.

Track	*n* (% of students)	Boys (% of students)	Socioeconomic status[a] (*M; SD*)	Having > 100 books (% of students)	Immigration background (% of students)	Class repetition (% of students)	Parental support (*M; SD*)
Advanced	217 (29.60)	53.90	55.56 (15.79)	58.50	13.40	0.90	2.49 (0.43)
General	306 (41.70)	46.70	48.93 (15.30)	38.00	16.70	7.80	2.50 (0.42)
Basic	172 (23.40)	61.00	42.46 (14.50)	26.80	32.00	20.30	2.45 (0.48)
Special needs	39 (5.30)	69.20	36.26 (10.53)	20.60	43.60	33.30	2.41 (0.48)
Total	734 (100)	53.40	48.85 (16.02)	41.50	20.70	10.10	2.48 (0.44)

Note: [a]International Socioeconomic Index.

Table 2. Descriptive statistics for the adjustment scores at the beginning and end of the school year.

Track	Occasion	Total score (*M; SD*)	Antisocial behavior (*M; SD*)	Anger control problems (*M; SD*)	Emotional distress (*M; SD*)	Self-worth problems (*M; SD*)
Advanced	1	8.35 (6.11)	0.91 (1.26)	1.94 (1.85)	3.94 (3.32)	1.56 (1.70)
	2	9.65 (9.01)	1.31 (2.23)	2.44 (2.70)	3.95 (3.59)	1.95 (2.21)
General	1	9.15 (6.23)	1.20 (1.55)	2.43 (2.22)	4.11 (3.17)	1.42 (1.53)
	2	11.09 (8.22)	1.56 (2.31)	2.69 (2.49)	4.64 (3.72)	2.21 (2.05)
Basic	1	11.15 (7.01)	1.88 (2.14)	2.76 (2.35)	4.65 (3.33)	1.85 (1.66)
	2	14.28 (10.14)	2.67 (3.14)	3.47 (3.10)	5.45 (4.07)	2.70 (2.12)
Special needs	1	8.77 (4.65)	1.49 (2.00)	2.05 (1.49)	3.72 (2.73)	1.51 (1.54)
	2	8.03 (5.40)	1.56 (2.06)	1.69 (1.56)	3.03 (3.07)	1.74 (2.05)

introduced in a standardized way by trained assistants, who provided relevant examples and gave the students opportunities to ask questions.

Statistical analyses

First, descriptive track differences regarding sample characteristics and adjustment problems, as well as their correlations, were calculated. Then, testing Hypothesis 1, cross-sectional differences in initial adjustment problems between tracks were estimated. To test Hypothesis 2, two waves of data were used to predict adjustment on the follow-up by track, controlling for the first occasion adjustment score. In order to provide useful descriptive information, hypothesis tests were first conducted without the inclusion of control variables (see Foster, 2010). Control variables were introduced in the second step.

In order to account for the hierarchical data structure of students nested in classes, all tests were conducted via multilevel modeling. Furthermore, the specific data characteristics had to be considered. Adjustment problem distribution is known to often be right skewed and overdispersed (variance exceeding the mean; e.g., Childs, Sullivan, & Gulledge, 2011). This was also the case for this study's dependent variables (Figure 1). For example, the raw adjustment data at T1 were clearly overdispersed regarding the RAASI global score ($M = 9.38$; Variance = 40.83) and both the raw scores and residuals were significantly right-skewed (raw scores: skewness v = 1.00; Shapiro-Wilk test $p < .01$; residuals: skewness v = 0.81; $p < .01$). Efforts to transform the data using different logarithms did not lead to a normal distribution. As ignoring these data characteristics can lead to inadequate significance tests (Kleinbaum, Kupper, Nizam, & Muller, 2008, p. 120), we decided to perform multilevel analyses for negative binomial distributions, which is a specific form of Poisson distribution (Hilbe, 2008b). Negative binomial modeling is often used for this kind of data analysis, as it explicitly accounts for skewness and overdispersion (Gordon et al., 2004; Smokowski, Mann, Reynolds, & Fraser, 2004). For negative binomial modeling, the student responses on the RAASI were coded as "0" (*never or almost never*), "1" (*sometimes*), and "2" (*almost always*), and these responses were summed for each scale.

Beside the advantages of negative binomial modeling, it must be noted that this procedure allows for the calculation of neither the percentage of variance on the different

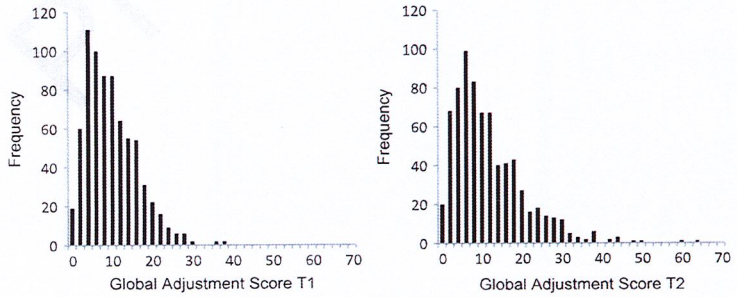

Figure 1. Histograms of self-reported total adjustment raw scores at T1 and T2.

hierarchical levels nor the explained variance of the predictors (R^2). Pseudo-R^2s do not solve this problem, as they provide only measures of model fit. They are often also viewed with some skepticism, as different versions of pseudo-R^2 produce different results, and there are no clear criteria for when to choose which version (Long, 1997, pp. 102ff). Negative binomial model effects are thus typically interpreted in terms of incidence rate ratios (IRR), which represent the multiplicative dependent variable change for each one-unit predictor change (Hilbe, 2008a, pp. 6–9). As in negative binomial models the coefficients are logarithmized, the IRR is defined as the inverse logarithm of the coefficients (exponential function).

All multilevel analyses were calculated using MLwiN 2.26 (Rasbash, Charlton, Browne, Healy, & Cameron, 2009), which performs maximum likelihood estimations using iterative generalized least squares (IGLS) and listwise deletion as a default. In the models with the highest rates of missing values, 79 out of 734 cases (10.7%) were not in use. Missing data was only a concern for the independent variables, whose missingness did not significantly correlate with the scores of the dependent variables (the correlations were $r = 0.00$ to $r = -0.07$). The predictor "academic track" contained no missing values. Under these conditions, listwise deletion can be considered an acceptable way to handle the missing data (see also Allison, 2002, 6ff).

Results

Preliminary analyses

Descriptive information on students' background characteristics (Table 1) indicated that in the basic track and special education classes, there was an overrepresentation of boys and students with low socioeconomic (ISEI) and sociocultural status (number of books at home). Furthermore, the lower the track, the higher the rate of students with an immigrant background and students who experienced class repetitions. Table 2 further provides an overview of the track means across the different RAASI subscales. The correlations between background characteristics and the adjustment subscale scores were partly significant, with mostly small effect sizes (Table 3).

Hypothesis 1: track differences at the beginning of the school year

Before analyzing track differences, we investigated the dependent variables' nested structure. Regarding all subscales, there was a significant variation between the 55 classrooms (e.g., $p < .01$ for the global score) but not between the eight participating schools (e.g., $p = .84$ for the global score), so a two-level structure (students in classrooms) was taken into account. It should be noted that in negative binomial models, the Level 1 variance, just as in other Poisson models, is fixed and thus is not reported in the following tables. The significance of the track differences was first examined alone (Model 1), and then again when controlling for participants' background characteristics (Model 2, Table 4).

In Model 1, basic-track students at T1 reported significantly higher rates of global adjustment problems than either the advanced- or general-track students ($p < .01$, IRR = 1.346 and 1.219, respectively). In terms of the IRR, this means adjustment problems were 34.6% more frequent in the basic track than in the advanced, and they were 21.9% more prevalent than in the general track. The same track differences were found for the antisocial behavior subscale ($p < .01$, IRR = 2.106 and 1.594, respectively).

Table 3. Spearman's correlations of adjustment scores and control variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Total score T1		.58**	.75**	.82**	.62**	.58**	.40**	.47**	.51**	.41**	–.09*	–.02	–.01	.10**	.03	–.20**
2. Antisocial behavior T1		–	.43**	.27**	.24**	.39**	.49**	.36**	.25**	.19**	.17**	.00	–.09*	.09*	.07	–.26**
3. Anger control problems T1			–	.45**	.34**	.48**	.37**	.51**	.34**	.30**	–.04	.02	–.04	.07	.04	–.18**
4. Emotional distress T1				–	.38**	.43**	.17**	.28**	.53**	.26**	–.21**	–.02	.06	.06	–.02	–.05
5. Self-worth problems T1					–	.40**	.26**	.28**	.27**	.50**	–.03	–.07	.01	.06	.04	–.21**
6. Global score T2						–	.68**	.82**	.82**	.72**	–.08*	–.04	–.04	.05	.06	–.31**
7. Antisocial behavior T2							–	.59**	.36**	.40**	.14**	–.00	–.04	.07	.08*	–.40**
8. Anger control problems T2								–	.55**	.45**	.02	–.03	–.00	.05	.03	–.26**
9. Emotional distress T2									–	.47**	–.25**	–.06	.00	.01	.02	–.14**
10. Self–worth problems T2										–	–.07	–.08*	–.07	.05	.04	–.29**
11. Gender											–	–.00	.03	–.01	.02	–.03
12. Socioeconomic status												–	.31**	–.09*	–.10*	.03
13. Number of books													–	–.14**	–.18**	.13**
14. Immigration														–	.11**	–.13**
15. Class repetition															–	–.13**
16. Parental support																–

*$p < .05$.**$p < .01$.

Table 4. Results from multilevel analysis predicting adjustment by track and background variables at the beginning of the school year.

	Total score		Antisocial behavior		Anger control problems		Emotional distress		Self-worth problems	
	Log-B[c] (*SE*)		Log-B (*SE*)		Log-B (*SE*)		Log-B (*SE*)		Log-B (*SE*)	
	Model 1[a]	Model 2[b]	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Intercept	2.414**	3.031**	0.645**	1.555**	1.018**	1.549**	1.536**	1.856**	0.615**	1.741**
	(0.059)	(0.177)	(0.106)	(0.328)	(0.072)	(0.241)	(0.071)	(0.203)	(0.076)	(0.257)
Variance of	0.013	0.017	0.047	0.020	0.012	0.016	0.023	0.029*	0.003	0.000
intercept Level 2	(0.009)	(0.010)	(0.031)	(0.028)	(0.013)	(0.015)	(0.013)	(0.014)	(0.015)	(0.000)
Track										
Advanced (basic)	–0.297**	–0.325**	–0.745**	–0.647**	–0.360**	–0.389**	–0.171	–0.235*	–0.170	–0.147
	(0.080)	(0.092)	(0.152)	(0.161)	(0.101)	(0.119)	(0.097)	(0.109)	(0.104)	(0.119)
General (basic)	–0.198**	–0.191*	–0.466**	–0.336*	–0.130	–0.142	–0.120	–0.144	–0.263**	–0.205*
	(0.075)	(0.082)	(0.138)	(0.137)	(0.092)	(0.103)	(0.091)	(0.098)	(0.098)	(0.104)
Special needs (basic)	–0.232	–0.260	–0.222	–0.525*	–0.295	–0.250	–0.216	–0.155	–0.200	–0.300
	(0.128)	(0.142)	(0.231)	(0.266)	(0.169)	(0.192)	(0.152)	(0.166)	(0.183)	(0.207)
Background										
Gender (girl)		–0.145**		0.374**		–0.052		–0.365**		–0.109
		(0.050)		(0.101)		(0.071)		(0.057)		(0.079)
Migration (no migration)		0.084		0.176		0.098		0.069		0.051
		(0.065)		(0.123)		(0.089)		(0.074)		(0.099)
Class repetition (no class rep.)		–0.021		–0.088		–0.006		–0.055		0.086
		(0.088)		(0.168)		(0.121)		(0.100)		(0.132)
Socioeconomic status		0.001		0.007*		0.0034		–0.001		–0.003
		(0.002)		(0.003)		(0.0024)		(0.002)		(0.003)
Books at home		0.033		–0.036		0.019		0.057*		0.046
		(0.020)		(0.040)		(0.028)		(0.023)		(0.031)
Parental support		–0.284**		–0.616**		–0.303**		–0.093		–0.056**
		(0.058)		(0.111)		(0.081)		(0.067)		(0.011)

Note: Variables enclosed in parentheses represent the reference categories. [a]Model with track as a predictor. [b]Model with track as a predictor, controlling for background characteristics. [c]Logarithmized B coefficient.
*$p < .05$. **$p < .01$.

General-track students also reported more antisocial behavior than advanced-track students ($p < .05$, IRR = 1.323). There were fewer anger control problems in the advanced than in either the basic track ($p < .01$, IRR = 0.698) or the general track ($p < .05$, IRR = 0.795). In addition, self-worth problems were less common in the general than in the basic stream ($p < .01$, IRR = 0.769). When background variables were included (Model 2), all effects remained significant. Furthermore, the differences between the basic and the advanced tracks regarding emotional distress ($p < .05$, IRR = 0.791) and between the basic track and the special needs classes concerning antisocial behavior ($p < .05$, IRR = 0.592) became significant (due to the suppression effect of the background variables).

Considering the background characteristics, boys reported fewer problems than girls regarding emotional distress and global adjustment ($p < .01$, IRR = 0.694 and 0.865, respectively), but they exhibited more antisocial behavior ($p < .01$, IRR = 1.454). Higher levels of parental support were related to fewer adjustment problems according to the global score and all subscales, except for emotional distress ($p < .01$, IRR from 0.946 to 0.540). Unexpectedly, higher socioeconomic status was positively related to more antisocial behavior ($p < .05$, IRR = 1.007), and a higher number of books in the home predicted more emotional distress ($p < .05$, IRR = 1.059). Further analyses indicated that neither effect was significant when being included as the only control variable in the model. We thus assume that these results relate to correlations between some of the control variables.

In conclusion, the Model 2 results show that the expectation that basic-track students would report more adjustment problems than those from the higher track at the start of the school year was supported by most, but not all, of the adjustment domains and track comparisons.

Hypothesis 2: tracking effects on the development of adjustment

Figure 2 shows students' total adjustment score development in terms of both the whole sample and separately for the different tracks across the school year. Prior to testing Hypothesis 2, we investigated whether students' adjustment problems generally increased (independently of the tracks). Performing a multilevel negative binomial analysis predicting reported behavior by measurement point (not displayed here), we found that global adjustment difficulties ($p < .01$, IRR = 1.200), antisocial behavior ($p < .01$, IRR = 1.355), anger control difficulties ($p < .01$, IRR = 1.170), emotional distress ($p < .01$, IRR = 1.088), and self-worth problems ($p < .01$, IRR = 1.415) increased significantly over the 7th school year. Separate analyses for each track indicated that students' reported problems in the advanced, general, and basic tracks increased significantly in relation to the total score (advanced: $p < .05$, IRR = 1.156; general, basic: $p < .01$, IRR = 1.207 and 1.281, respectively), antisocial behavior (advanced, general, basic: $p < .01$, IRR = 1.442, 1.301, and 1.419, respectively), anger control problems (advanced, basic: $p < .01$, IRR = 1.256 and 1.255, respectively), emotional distress (general, basic: $p < .01$, IRR = 1.123 and 1.171, respectively), and self-worth problems (advanced, general, basic: $p < .01$, IRR = 1.247, 1.550, and 1.459, respectively). No significant change was found for the advanced-track students in terms of emotional distress or for the general-track students concerning anger control. The emotional distress of the special needs students decreased significantly ($p < .05$, IRR = 0.814).

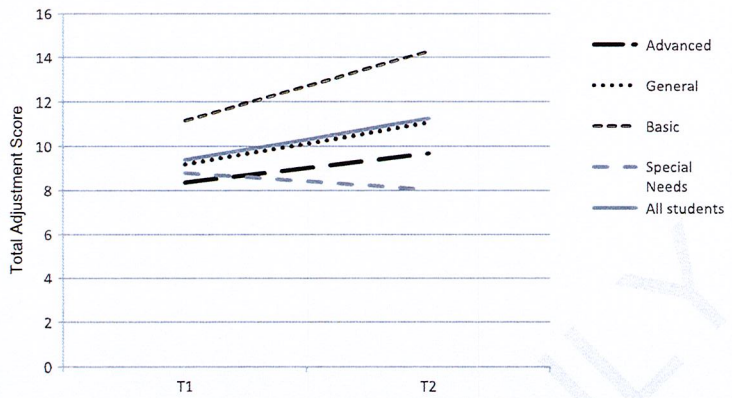

Figure 2. Track-specific changes in total adjustment score across the seventh grade.

In order to investigate Hypothesis 2, T2 adjustment problems were predicted by track, controlling for adjustment at T1 (Table 5). Performing these analyses in Model 1, assignment in the basic, as opposed to the advanced, track significantly predicted students' increased T2 problems across all domains ($p < .05$ and $p < .01$, respectively, IRR from 1.239 to 1.470), except for anger control. Furthermore, basic-track students developed more difficulties than general-track students (anger control problems, $p < .05$, IRR = 1.234) and those in special needs classes (global score, anger control problems, emotional distress, $p < .01$, IRR = 1.499, 1.751, and 1.674, respectively). When changing the reference category, it became evident that global adjustment problems ($p < .05$, IRR = 1.330) and emotional distress ($p < .01$, IRR = 1.511) increased more among general-track students than among special needs students.

Model 2 tested whether these track differences remained when controlling for students' characteristics (Table 5). The difference between the basic and the advanced track regarding self-worth problems and the difference between the basic and general track in anger control problems were no more significant. Background factors appeared to act as suppressors of the difference between the basic and general tracks in terms of emotional distress, which became significant ($p < .05$, IRR = 1.239) after controlling for these variables. In contrast, the global scores of the special needs classes did no more differ from those of the general-track students.

An analysis of the control variables' effects shows that girls developed worse than boys in terms of emotional distress ($p < .01$, IRR = 1.332), while boys exhibited a greater increase in antisocial behavior ($p < .05$, IRR = 1.231). Increased parental support predicted a significant decrease in all forms of adjustment problems over time ($p < .01$, IRR from 0.751 to 0.336). Additionally, a separate model (not shown in Table 5) tested whether there was an interaction between gender and track. For boys, a change in the predictor from general to basic track was accompanied by a larger increase in emotional distress ($p < .05$, IRR = 1.346), even though boys had generally lower scores for this adjustment problem.

In conclusion, Hypothesis 2 was partially confirmed. For all domains, except for anger control and self-worth problems, the basic-track students' development was significantly

Table 5. Results from multilevel analysis predicting adjustment at the end of the school year by track, controlling for adjustment at the beginning of the school year and background variables.

	Total score		Antisocial behavior		Anger control		Emotional distress		Positive self	
	Log-B[c] (*SE*)		Log-B (*SE*)		Log-B (*SE*)		Log-B (*SE*)		Log-B (*SE*)	
	Model 1[a]	Model 2[b]	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Intercept	1.886**	3.064**	0.254	2.630**	0.647**	1.630**	1.059**	2.047**	0.478**	1.806**
	(0.086)	(0.200)	(0.142)	(0.350)	(0.094)	(0.235)	(0.077)	(0.204)	(0.092)	(0.252)
Variance of intercept L2	0.026*	0.031**	0.072	0.058	0.029	0.021	0.012	0.025*	0.032	0.054*
	(0.013)	(0.013)	(0.043)	(0.038)	(0.017)	(0.015)	(0.010)	(0.013)	(0.018)	(0.023)
T1 score	0.062**	0.060**	0.306**	0.265**	0.191**	0.178**	0.121**	0.113**	0.234**	0.215**
	(0.004)	(0.004)	(0.039)	(0.029)	(0.015)	(0.015)	(0.008)	(0.009)	(0.019)	(0.021)
Track										
Advanced (basic)	−0.214*	−0.215*	−0.385*	−0.428*	−0.206	−0.159	−0.235**	−0.292**	−0.268*	− 0.259
	(0.098)	(0.106)	(0.180)	(0.186)	(0.114)	(0.119)	(0.088)	(0.106)	(0.114)	(0.140)
General (basic)	−0.120	−0.153	−0.304	−0.268	−0.210*	−0.155	−0.102	−0.214*	−0.086	−0.121
	(0.091)	(0.095)	(0.166)	(0.162)	(0.105)	(0.105)	(0.081)	(0.094)	(0.106)	(0.126)
Special needs (basic)	−0.405**	−0.419**	−0.435	−0.479	−0.560**	−0.509*	−0.515**	−0.570**	−0.360	−0.431
	(0.151)	(0.159)	(0.280)	(0.297)	(0.193)	(0.204)	(0.153)	(0.174)	(0.186)	(0.222)
Background										
Gender (girl)	−0.080		0.208*		0.049		−0.287**		−0.110	
	(0.052)		(0.106)		(0.069)		(0.059)		(0.071)	
Immigration (no immigration.)	−0.085		−0.034		0.061		−0.086		−0.108	
	(0.069)		(0.132)		(0.087)		(0.074)		(0.092)	
Class repetition (no class rep.)	−0.019		−0.014		−0.004		0.050		−0.050	
	(0.091)		(0.174)		(0.118)		(0.098)		(0.121)	
Socioeconomic status	0.000		0.003		0.0039		−0.001		−0.002	
	(0.002)		(0.004)		(0.0023)		(0.002)		(0.002)	
Books at home	0.003		0.001		0.016		0.008		−0.005	
	(0.021)		(0.042)		(0.027)		(0.023)		(0.028)	
Parental support	−0.461**		−1.090**		−0.520**		−0.287**		−0.441**	
	(0.062)		(0.116)		(0.077)		(0.065)		(0.079)	

Note: Variables enclosed in parentheses represent the reference categories. [a]Model with track as a predictor. [b]Model with track as a predictor, controlling for background characteristics.
[c]Logarithmized B coefficient.
*$p < .05$. **$p < .01$.

worse than that of the advanced-track students. In contrast, this pattern was not consistent in comparison to general-track students (significant only concerning emotional distress).

Discussion

When first considering students' development in the seventh grade, our data indicate an increase in externalizing, as well as internalizing, problems. This relates to reports that students in general, or at least some subgroups of the student population, develop more adjustment difficulties at the beginning of secondary school (Blyth et al., 1983; Hirsch & Rapkin, 1987; Pellegrini & Long, 2002; Simmons, Blyth, Van Cleave, & Bush, 1979). The higher increase of emotional distress among girls and the larger increase of antisocial behavior among boys support earlier findings (e.g., Simmons et al., 1979). These adjustment difficulties are, no doubt, related to the developmental changes students undergo at this age (Howe & Richards, 2011). However, this is not the only factor involved. We also found some significant relationships with the academic track they attended.

Differences between tracks at the beginning of the school year

Basic-track students tended to report the most adjustment problems a few weeks after the beginning of their 7th school year (although not all track comparisons were significant). This is generally in line with the findings of earlier cross-sectional studies (Junger-Tas et al., 2010; Lipps et al., 2010; Van Houtte & Stevens, 2008). However, these results should be interpreted cautiously, as in the RAASI students reported on their adjustment not only during the few weeks of seventh grade but also during the previous 6 months, a time spectrum during which they were still in primary school. The T1 differences between tracks can thus not be primarily understood as a result of processes that occurred in students' new tracked classrooms, but they may mirror selection effects. In addition, it could be supposed that basic-track students developed more adjustment difficulties than did those from other tracks even before the first measurement point. These students had possibly already been labeled as early as primary school, which left them with feelings of status loss and a sense of futility (see also Demanet & Van Houtte, 2011; Van Houtte & Stevens, 2008). As primary school adjustment could not be taken into account, the issues relating to the time before the first measurement point could not be investigated in more detail in this study.

Interestingly, special needs students, for whose level of adjustment no hypothesis was formulated, reported comparable levels of adjustment difficulties to general- and advanced-track students even though the former had more disadvantaged background characteristics. In light of the international literature on the characteristics of students with learning disabilities, this finding is rather unexpected (Wiener & Tardiff, 2004). However, it corresponds to the heterogeneous state of research in Switzerland on the behavioral characteristics of students from special needs classes (Müller et al., 2012; Walser & Killias, 2009). This heterogeneity is related to the federal organization of the Swiss educational system, in which there are wide variations in definitions on who should attend special needs classes. Hence, this finding might be best interpreted in terms of the educational specificities in the canton of Fribourg. According to local school law, special needs classes are reserved for students "who do not progress enough regarding basic knowledge and competence" (School Law of the Canton of Fribourg, 1985, Art. 19). Thus, it could be that in this sample, students with high levels of behavioral problems

(possibly in addition to academic difficulties) were selected into the regular basic track and not into special needs classes.

Tracking and the development of adjustment

Basic-track students tended to develop more adjustment difficulties than students from the higher qualifying tracks, independently of their behavior at the beginning of seventh grade (although not all track comparisons were significant). When including background characteristics, these effects remained significant for the total score, emotional distress, and antisocial behavior but not for anger control or self-worth problems. Anger control issues may be relatively stable student characteristics; therefore, they are most likely less influenced by the school environment. However, findings on the stability of self-control are heterogeneous (Burt, Simons, & Simons, 2006), so this question needs to be further elucidated. The comparable rates of increase in self-worth problems among basic-track students to pupils from other tracks could relate to the social reference norm. As research points to a positive impact of a reference of low-achieving classmates on academic self-concept (Trautwein, Lüdtke, Marsh, Köller, & Baumert, 2006), this effect may have also influenced the development of global self-worth.

It is important to examine the different mechanisms relating to the observed relationship between basic track membership and student development. On an individual level, the finding that basic-track students already reported the most adjustment problems at T1 may indicate a heightened developmental risk for these students (Robins & Price, 1991). While the fact that T1 adjustment and crucial background characteristics were controlled for weakens this argument, individual risk factors not considered here (e.g., critical life events, disadvantaged neighborhoods, etc.) may still have contributed to students' development.

Another mechanism could be an individual sense of futility among the basic-track students that influenced their development (Van Houtte & Stevens, 2008). This interpretation is partly supported by the finding that basic-track students reported the highest rates of self-worth problems and emotional distress. In this context, it is interesting that boys' emotional distress increased significantly more than girls' did when they attended the low, but not the general, track. This corresponds to findings from Van Houtte (2005), who reported that low-track attendance predicted lower global self-worth among boys but not among girls. One interpretation of this finding was that boys might face higher expectations regarding the achievement of high-status professional positions, so that "for girls there is less at stake that depends on their tracking" (Van Houtte, 2005, p. 759). In order to shed more light on these gender-related questions, future studies should investigate whether boys and girls experience track assignments differently.

On a compositional level, research on negative peer influence might help to explain our findings. As in this study, externalizing problem behavior was reported to be highest in the basic track classrooms at T1, positive peer reinforcement for such behavior may have occurred more often in these classes (Dishion & Tipsord, 2011). Furthermore, a polarization of low- and high-stream students' attitudes towards school could have contributed to adjustment problems (Van Houtte, 2006). As negative peer influence also relates to depressive symptoms (E. A. Stevens & Prinstein, 2005), mechanisms on the compositional level can also provide explanations for basic-track students' steeper increase in emotional distress.

On an institutional level, specific teacher and instructional characteristics could have contributed to the students' differing development (Van Houtte, 2004, 2006). For example, studies on the reciprocal influences of student and teacher behaviors suggest that some teachers adapt to higher levels of students' problem behaviors by reducing their expectations or reacting aversively, resulting in coercive interaction patterns that can exacerbate adjustment problems (Sutherland & Oswald, 2005). Moreover, differences in staff culture between school types may contribute to differential student behaviors (Demanet & Van Houtte, 2012). However, since there are few existing data on these topics in the Swiss school context, we do not put too much emphasis on institutional explanations in this study.

In addition to the discussed findings, special needs student development is particularly interesting because they were the only ones whose adjustment difficulties did not increase. As these students had low adjustment problems at the beginning of the school year, individual risk and negative peer influence may have played a subordinate role regarding their further development. Furthermore, special needs teachers are specifically trained to deal with behavioral problems; thus, they might have been able to adequately manage these small-sized classrooms. Also, special needs classes have individualized curricula and less academic pressure. While such a protective climate may have positive effects on adjustment, possible drawbacks regarding academic progress should also be kept in mind (Waldron & McLeskey, 1998). Due to the small number of special needs students in the sample and the regional specificities described above, we recommend a cautious interpretation of the findings on this student population.

Limitations and future perspectives

This study's main strength lies in the fact that relationships between track assignments and students' adjustment could be measured longitudinally within a clearly structured school system. The fact that students did not change tracks across courses and that they did not provide self-reports on their tracking status allowed for unambiguous tracking assignment definitions. This study's design, combined with the use of multilevel analyses, significantly extends earlier research into this topic.

However, causal inferences regarding the effects of tracking cannot be drawn. First, as no control group of non-tracked students was included, it cannot be postulated that the equivalent of basic-track students in a detracked system would have developed fewer adjustment difficulties. Hence, further comparisons should be made between students' development within school systems that differ in their degrees of tracking.

Second, while several background variables were statistically controlled for, individual factors directly related to achievement (such as math test scores or intelligence) were not included. These factors are less important in researching tracking effects on psychological adjustment than when examining tracking effects on achievement. However, it will be of great interest to discover what role students' cognitive competencies play in the relationship between track assignment and adjustment difficulties. Further, this study relied on self-reports of adjustment problems, which can be prone to frame-of-reference effects. This is, unfortunately, typical of several forms of adjustment measures (e.g., teacher reports can be biased by the school context, comparisons with teachers' previous classrooms, etc.). Given the general validity of anonymous self-reports (Thornberry & Krohn, 2000), this issue is best dealt with by clearly stating the advantages and limitations of the measure used (e.g., students are reliable informants on their own well-being vs. risk of frame-of-reference effects) and to replicate this study using other instruments.

Third, the mechanisms underlying the association between track assignment and adjustment need to be further elucidated. For example, it should be examined whether

an effect of low-track enrollment on adjustment is mediated by the individual's sense of futility, the classmates' characteristics, or institutional determinants.

In conclusion, this study's findings can help to better understand early adolescent development in light of a school system's organizational characteristics. As adjustment problems can be very challenging for individual students, their classmates, teachers, and others, we suggest that the already sophisticated research on the influence of academic tracking on achievement be extended to include a detailed analysis of its effects on psychological adjustment.

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